1934 USB Webcam

Written By: Marc de Vinck

TOOLS:

- Fume extractor (1)
- Hot glue gun (1)
- Rosin-core solder (1)
- Soldering iron (1)

PARTS:

- Camera (1)
  An old one will do.
- Heat-shrink tubing (1)
- USB camera (1)

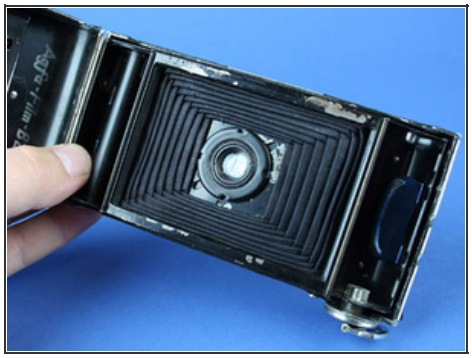
SUMMARY

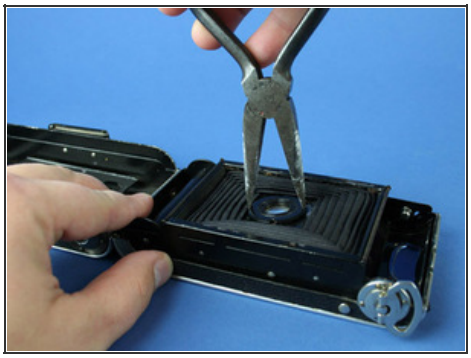
A while ago I converted a 1934 folding camera into a USB web cam. I brought the camera with me to Maker Faire and a lot of people wanted to know how I made it, so here is the step-by-step.

Step 1 — 1934 USB Webcam

- First you need the cameras. Scour the Internet, check local antique shops, or ask your friends. These types of cameras, both the antique camera and web cam, are readily available and they are very affordable.
- You can get antique cameras for less than $10 each, and the same goes for the webcam.

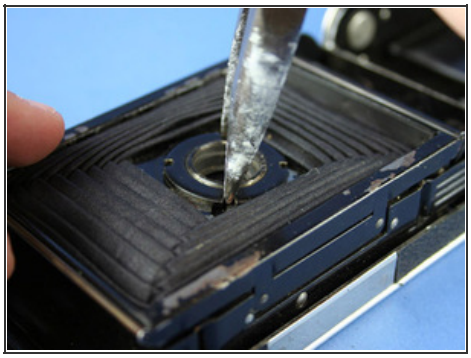
Step 2





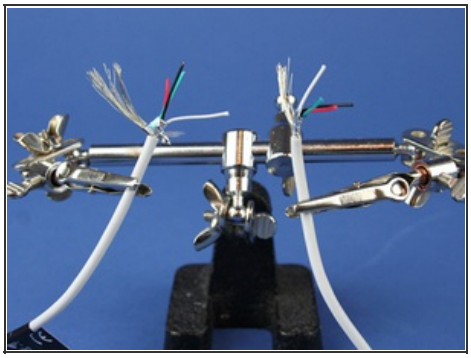
- Start by opening up the antique folding camera. There is usually a switch somewhere that slides over so you can load the film.
- Inside, you will find a retaining ring. This holds the lens assembly in place. You will need to remove this ring. It is much easier to hack the lens assembly when it is off the camera body.
- You can use some needle-nose pliers to unscrew the ring.

Step 3



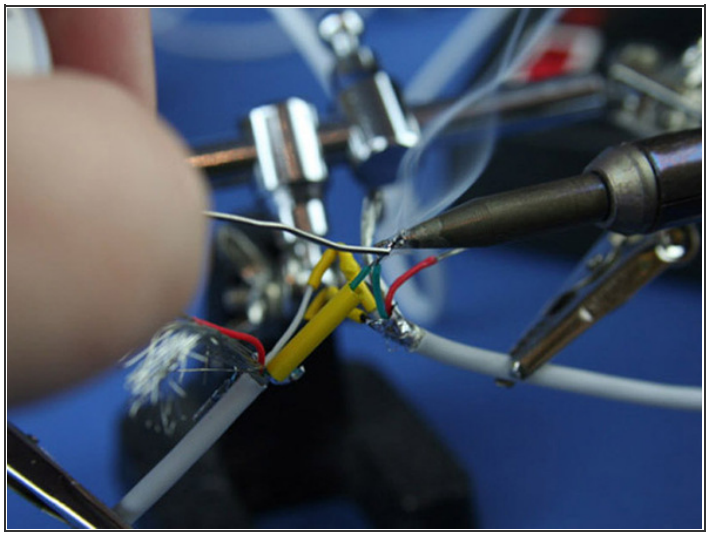
- Now the lens assembly will drop right out of the camera body.
- There are several rings that you can unscrew and try to pry the lenses out. However, it's a lot easier to just put a screwdriver on the glass and give a slight tap with a hammer. The lenses will shatter and you can scrape out the remaining parts with the screwdriver. Make sure you wear safety glasses!
- Now that the lenses are removed, go ahead and attach the lens assembly back to the camera body.

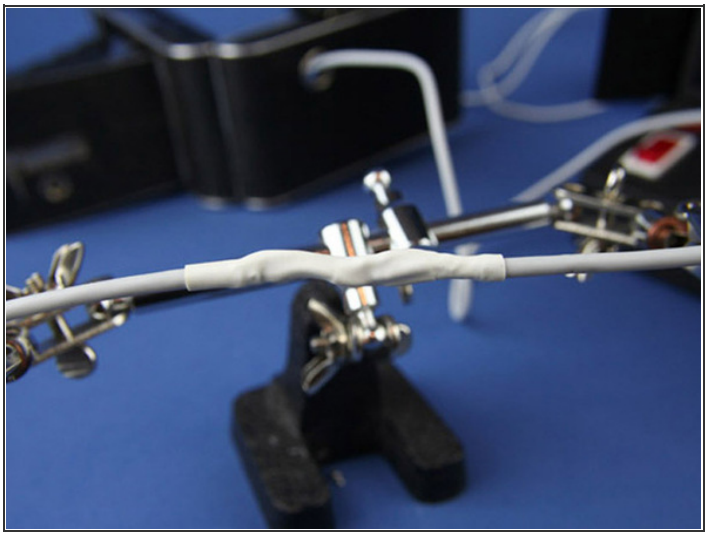
Step 4



- Now you need to do a little hacking of the USB wire. The plug will not fit through the hole in the camera, so we need to cut it and splice it back together. Cut the wire about 12" from the USB plug of the web cam.
- Next, remove the red plastic window from the antique camera. This is where the USB wire and the microphone wire will pass through. If your camera doesn't have a window, you can feed the wire through the tripod mount or just drill a hole in the case.
- Next, feed the USB wire through the hole in the antique camera. Don't forget this step; I almost did!

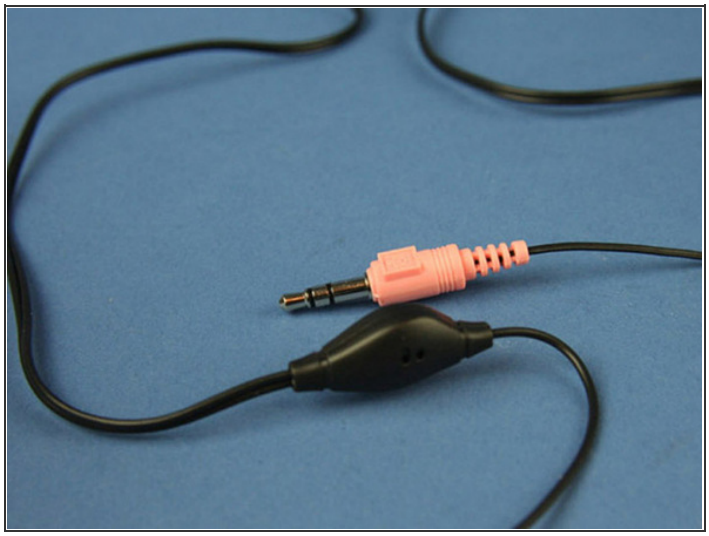
Step 5

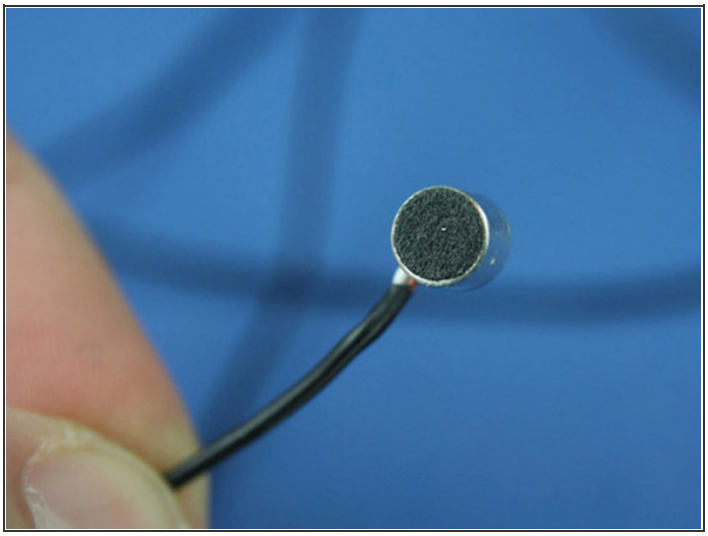




- Now you can solder all the wires back together. The USB plug has (4) wires and a braided shielding wire. Solder each one back together and use a little bit of heat-shrink, or electrical tape, so there aren't any shorts. Make sure to add a larger piece of heat-shrink to the USB wire prior to soldering all the smaller connections.
- Once they are all soldered, go ahead add heat-shrink the larger piece of tubing over the entire splice.

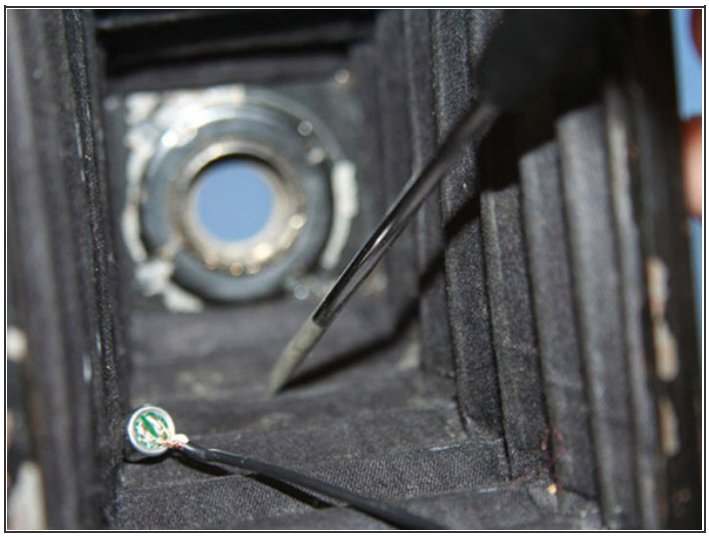
Step 6

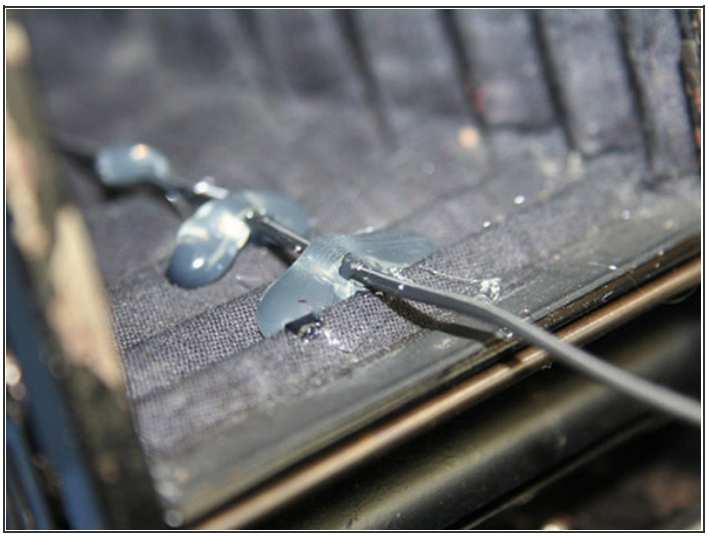




- Now it is time to add the microphone. My web cam came with a combination headphone/microphone plug.
- All I had to do is cut the headphone wire completely off and crack open the microphone's plastic case. This left me with a nice little microphone.

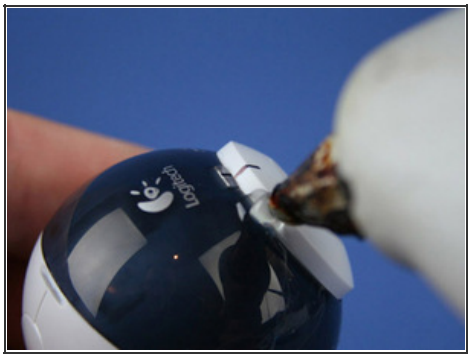
Step 7





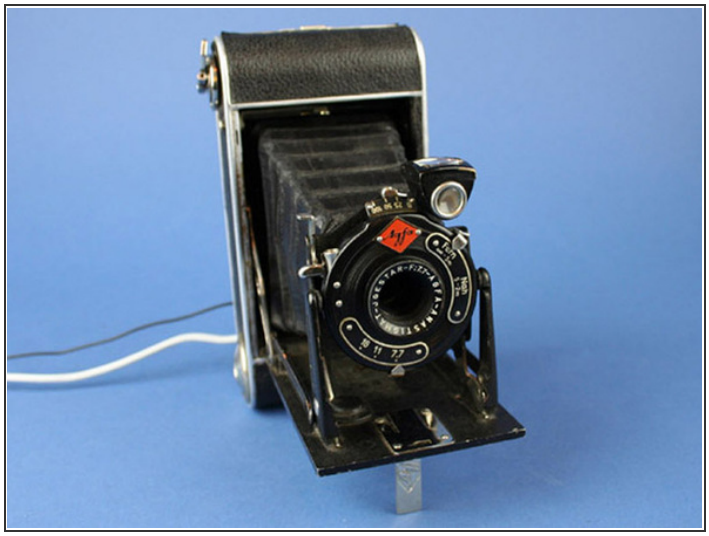
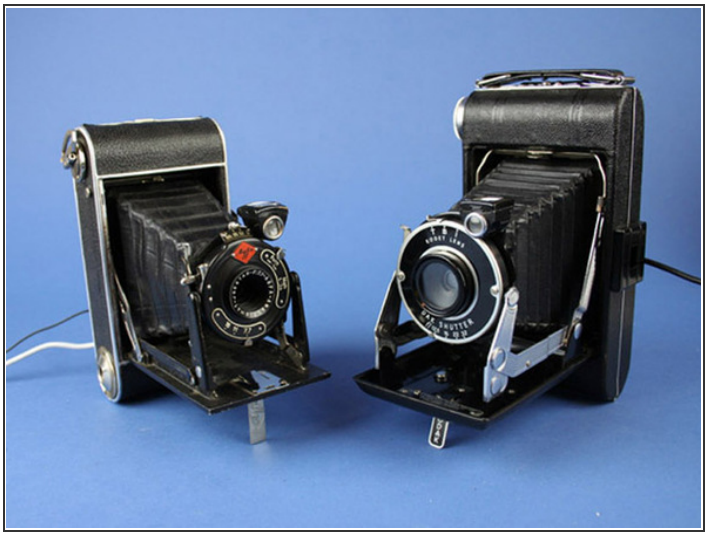
- Feed the microphone through the hole in the back of the camera! Using a small screwdriver, poke a hole in the camera's bellows. Next, feed the microphone through the newly created hole.
- Use some hot-glue to attach the microphone wire to the camera's bellows.

Step 8



- Now it is time to add the USB camera to the antique camera. First, plug the USB camera into your PC. Adjust the lens so you are in focus. Now, mark the lens with a small line. Finally, add a dab of hot-glue to the focusing ring. Make sure the lens is still on the mark!
- Next, hot-glue the web cam into the antique camera. Add a healthy amount of hot-glue to the focusing ring of the web cam. Quickly place the camera inside the antique camera. Look through the front of the camera to make sure the web cam is aligned properly.
- As a final step, I added a little extra hot-glue on the sides for good measure.

Step 9

- Set the exposure to bulb (or "T" if your camera has that setting) and click the lever to the open position. The shutter should stay open. If not you can make a slight bend and it will "stick" open, or just add a dab of glue.
- I have (2) antique USB web cams. I gave one to a friend so we can video-conference using these fun little vintage USB cameras.

The best part about this project is the availability of the cameras. I was able to pick up a USB web cam for $10 at a local bigbox store. The antique cameras I picked up on ebay for $1. Actually, I picked up (2) cameras for $1 each and the shipping was only $5. That was a great deal. You can easily pick one up for less than $10 online or a local antiques shop.

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